RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: ___10/539,208___

Source: ___ /FWP___

Date Processed by STIC: ___10/12/06___

ENTERED

IFWP

RAW SEQUENCE LISTING   DATE: 10/12/2006
PATENT APPLICATION: US/10/539,208   TIME: 09:26:31

Input Set : A:\B&B-135.ST25.txt
Output Set: N:\CRF4\10122006\J539208.raw

```
 3 <110> APPLICANT: Raab, David
 4         Graf, Marcus
 5         Notka, Frank
 6         Wagner, Ralf
 8 <120> TITLE OF INVENTION: Method and Device for Optimizing a Nucleotide
Sequence for the
 9         Purpose of Expression of a Protein
11 <130> FILE REFERENCE: B&B-135
13 <140> CURRENT APPLICATION NUMBER: 10/539,208
14 <141> CURRENT FILING DATE: 2005-06-17
16 <150> PRIOR APPLICATION NUMBER: PCT/EP03/14850
17 <151> PRIOR FILING DATE: 2003-12-23
19 <150> PRIOR APPLICATION NUMBER: DE 10260805.9
20 <151> PRIOR FILING DATE: 2002-12-23
22 <160> NUMBER OF SEQ ID NOS: 32
24 <170> SOFTWARE: PatentIn version 3.3
26 <210> SEQ ID NO: 1
27 <211> LENGTH: 435
28 <212> TYPE: DNA
29 <213> ORGANISM: Homo sapiens
31 <400> SEQUENCE: 1
32 atgtggctgc agagcctgct gctcttgggc actgtggcct gcagcatctc tgcacccgcc       60
34 cgctcgccca gccccagcac gcagccctgg gagcatgtga atgccatcca ggaggcccgg      120
36 cgtctcctga acctgagtag agacactgct gctgagatga atgaaacagt agaagtcatc      180
38 tcagaaatgt ttgacctcca ggagccgacc tgcctacaga cccgcctgga gctgtacaag      240
40 cagggcctgc ggggcagcct caccaagctc aagggcccct tgaccatgat ggccagccac      300
42 tacaagcagc actgccctcc aaccccggaa acttcctgtg caacccagat tatcaccttt      360
44 gaaagtttca aagagaacct gaaggacttt ctgcttgtca tcccctttga ctgctgggag      420
46 ccagtccagg agtag                                                        435
49 <210> SEQ ID NO: 2
50 <211> LENGTH: 435
51 <212> TYPE: DNA
52 <213> ORGANISM: Homo sapiens
54 <400> SEQUENCE: 2
55 atgtggctgc agagcctgct gctgctggga acagtggcct gtagcatctc tgcccctgcc       60
57 agaagcccta gccctagcac acagccttgg gagcacgtga atgccatcca ggaggccagg      120
59 agactgctga acctgagcag agatacagcc gccgagatga acgagaccgt ggaggtgatc      180
61 agcgagatgt tcgacctgca ggagcctaca tgcctgcaga cccggctgga gctgtataag      240
63 cagggcctga gaggctctct gaccaagctg aagggccccc tgacaatgat ggccagccac      300
65 tacaagcagc actgccctcc tacccctgag acaagctgcg ccacccagat catcaccttc      360
67 gagagcttca aggagaacct gaaggacttc ctgctggtga tccccttcga ttgctgggag      420
69 cccgtgcagg agtag                                                        435
72 <210> SEQ ID NO: 3
73 <211> LENGTH: 489
```

```
74  <212> TYPE: DNA
75  <213> ORGANISM: Homo sapiens
77  <400> SEQUENCE: 3
78  atgagaattt cgaaaccaca tttgagaagt atttccatcc agtgctactt gtgtttactt      60
80  ctaaacagtc attttctaac tgaagctggc attcatgtct tcattttggg ctgtttcagt     120
82  gcagggcttc ctaaaacaga agccaactgg gtgaatgtaa taagtgattt gaaaaaaatt     180
84  gaagatctta ttcaatctat gcatattgat gctactttat atacggaaag tgatgttcac     240
86  cccagttgca aagtaacagc aatgaagtgc tttctcttgg agttacaagt tatttcactt     300
88  gagtccggag atgcaagtat tcatgataca gtagaaaatc tgatcatcct agcaaacaac     360
90  agtttgtctt ctaatgggaa tgtaacagaa tctggatgca aagaatgtga ggaactggag     420
92  gaaaaaaata ttaaagaatt tttgcagagt tttgtacata ttgtccaaat gttcatcaac     480
94  acttcttag                                                             489
97  <210> SEQ ID NO: 4
98  <211> LENGTH: 489
99  <212> TYPE: DNA
100 <213> ORGANISM: Homo sapiens
102 <400> SEQUENCE: 4
103 atgcggatca gcaagcccca cctgaggagc atcagcatcc agtgctacct gtgcctgctg      60
105 ctgaacagcc acttcctgac agaggccggc atccacgtgt ttatcctggg ctgcttctct     120
107 gccggcctgc ctaagacaga ggccaactgg gtgaacgtga tcagcgacct gaagaagatc     180
109 gaggacctga tccagagcat gcacatcgac gccaccctgt acacagagag cgacgtgcac     240
111 cctagctgta aggtgaccgc catgaagtgc ttcctgctgg agctgcaggt gatcagcctg     300
113 gagagcggcg atgccagcat ccacgacacc gtggagaacc tgatcatcct ggccaacaac     360
115 agcctgagca gcaacggcaa tgtgaccgag agcggctgca aggagtgtga ggagctggag     420
117 gagaagaaca tcaaggagtt cctgcagagc ttcgtgcaca tcgtgcagat gttcatcaac     480
119 accagctag                                                             489
122 <210> SEQ ID NO: 5
123 <211> LENGTH: 426
124 <212> TYPE: DNA
125 <213> ORGANISM: Mus musculus
127 <400> SEQUENCE: 5
128 atgtggctgc agaatttact tttcctgggc attgtggtct acagcctctc agcacccacc      60
130 cgctcaccca tcactgtcac ccggccttgg aagcatgtag aggccatcaa agaagccctg     120
132 aacctcctgg atgacatgcc tgtcacattg aatgaagagg tagaagtcgt ctctaacgag     180
134 ttctccttca agaagctaac atgtgtgcag acccgcctga agatattcga gcagggtcta     240
136 cggggcaatt tcaccaaaact caagggcgcc ttgaacatga cagccagcta ctaccagaca     300
138 tactgccccc caactccgga aacggactgt gaaacacaag ttaccaccta tgcggatttc     360
140 atagacagcc ttaaaacctt tctgactgat atcccctttg aatgcaaaaa accaggccaa     420
142 aaatag                                                                426
145 <210> SEQ ID NO: 6
146 <211> LENGTH: 426
147 <212> TYPE: DNA
148 <213> ORGANISM: Mus musculus
150 <400> SEQUENCE: 6
151 atgtggctgc agaacctgct gttcctgggc atcgtggtgt acagcctgag cgcccccacc      60
153 aggagcccca tcaccgtgac caggccctgg aagcacgtgg aggccatcaa ggaggccctg     120
155 aacctgctgg acgacatgcc cgtgaccctg aacgaggagg tggaggtggt gagcaacgag     180
157 ttcagcttca gaaagctgac ctgcgtgcag accaggctga agatcttcga gcagggcctg     240
159 aggggcaact tcaccaagct gaagggcgcc ctgaacatga ccgccagcta ctaccagacc     300
```

```
161 tactgccccc ccaccccccga gaccgactgc gagacccagg tgaccaccta cgccgacttc      360
163 atcgacagcc tgaagacctt cctgaccgac atccccttcg agtgcaagaa gcccggccag      420
165 aagtag                                                                  426
168 <210> SEQ ID NO: 7
169 <211> LENGTH: 279
170 <212> TYPE: DNA
171 <213> ORGANISM: Mus musculus
173 <400> SEQUENCE: 7
174 atgaaggtct ccaccactgc ccttgctgtt cttctctgta ccatgacact ctgcaaccaa       60
176 gtcttctcag cgccatatgg agctgacacc ccgactgcct gctgcttctc ctacagccgg      120
178 aagattccac gccaattcat cgttgactat tttgaaacca gcagcctttg ctcccagcca      180
180 ggtgtcattt tcctgactaa gagaaaccgg cagatctgcg ctgactccaa agagacctgg      240
182 gtccaagaat acatcactga cctggaactg aatgcctag                             279
185 <210> SEQ ID NO: 8
186 <211> LENGTH: 279
187 <212> TYPE: DNA
188 <213> ORGANISM: Mus musculus
190 <400> SEQUENCE: 8
191 atgaaggtga gcaccacagc tctggctgtg ctgctgtgca ccatgaccct gtgcaaccag       60
193 gtgttcagcg ctccttacgg cgccgatacc cctacagcct gctgcttcag ctacagcagg      120
195 aagatcccca ggcagttcat cgtggactac ttcgagacca gcagcctgtg ttctcagccc      180
197 ggcgtgatct tcctgaccaa gcggaacaga cagatctgcg ccgacagcaa ggagacatgg      240
199 gtgcaggagt acatcaccga cctggagctg aacgcctag                             279
202 <210> SEQ ID NO: 9
203 <211> LENGTH: 42
204 <212> TYPE: DNA
205 <213> ORGANISM: Artificial Sequence
207 <220> FEATURE:
208 <223> OTHER INFORMATION: Optimal DNA sequence corresponding to
hypothetical amino acid
209         sequence.
212 <220> FEATURE:
213 <221> NAME/KEY: misc_feature
214 <222> LOCATION: (42)..(42)
215 <223> OTHER INFORMATION: n = a, t, g, or c
217 <400> SEQUENCE: 9
```

W--> 218 garcarttya thathaaraa yatgttyath athaaraayg cn   42

```
221 <210> SEQ ID NO: 10
222 <211> LENGTH: 14
223 <212> TYPE: PRT
224 <213> ORGANISM: Artificial Sequence
226 <220> FEATURE:
227 <223> OTHER INFORMATION: Hypothetical amino acid sequence.
229 <400> SEQUENCE: 10
231 Glu Gln Phe Ile Ile Lys Asn Met Phe Ile Ile Lys Asn Ala
232 1               5                   10
235 <210> SEQ ID NO: 11
236 <211> LENGTH: 9
237 <212> TYPE: DNA
238 <213> ORGANISM: Artificial Sequence
```

```
    240 <220> FEATURE:
    241 <223> OTHER INFORMATION: Combination DNA Sequence for amino acid SEQ ID
NO: 10.
    243 <400> SEQUENCE: 11
    244 garcartty                                                              9
    247 <210> SEQ ID NO: 12
    248 <211> LENGTH: 9
    249 <212> TYPE: DNA
    250 <213> ORGANISM: Artificial Sequence
    252 <220> FEATURE:
    253 <223> OTHER INFORMATION: Combination DNA Sequence for amino acid SEQ ID
NO: 10.
    255 <400> SEQUENCE: 12
    256 carttyath                                                              9
    259 <210> SEQ ID NO: 13
    260 <211> LENGTH: 9
    261 <212> TYPE: DNA
    262 <213> ORGANISM: Artificial Sequence
    264 <220> FEATURE:
    265 <223> OTHER INFORMATION: Combination DNA Sequence for amino acid SEQ ID
NO: 10.
    267 <400> SEQUENCE: 13
    268 ttyathath                                                              9
    271 <210> SEQ ID NO: 14
    272 <211> LENGTH: 9
    273 <212> TYPE: DNA
    274 <213> ORGANISM: Artificial Sequence
    276 <220> FEATURE:
    277 <223> OTHER INFORMATION: Combination DNA Sequence for amino acid SEQ ID
NO: 10.
    279 <400> SEQUENCE: 14
    280 athathaar                                                              9
    283 <210> SEQ ID NO: 15
    284 <211> LENGTH: 9
    285 <212> TYPE: DNA
    286 <213> ORGANISM: Artificial Sequence
    288 <220> FEATURE:
    289 <223> OTHER INFORMATION: Combination DNA Sequence for amino acid SEQ ID
NO: 10.
    291 <400> SEQUENCE: 15
    292 athaaraay                                                              9
    295 <210> SEQ ID NO: 16
    296 <211> LENGTH: 9
    297 <212> TYPE: DNA
    298 <213> ORGANISM: Artificial Sequence
    300 <220> FEATURE:
    301 <223> OTHER INFORMATION: Combination DNA Sequence for amino acid SEQ ID
NO: 10.
    303 <400> SEQUENCE: 16
    304 aaraayatg                                                              9
    307 <210> SEQ ID NO: 17
    308 <211> LENGTH: 9
    309 <212> TYPE: DNA
```

```
310 <213> ORGANISM: Artificial Sequence
312 <220> FEATURE:
```

```
     313 <223> OTHER INFORMATION: Combination DNA Sequence for amino acid SEQ ID
NO: 10.
     315 <400> SEQUENCE: 17
     316 aayatgtty                                                              9
     319 <210> SEQ ID NO: 18
     320 <211> LENGTH: 9
     321 <212> TYPE: DNA
     322 <213> ORGANISM: Artificial Sequence
     324 <220> FEATURE:
     325 <223> OTHER INFORMATION: Combination DNA Sequence for amino acid SEQ ID
NO: 10.
     327 <400> SEQUENCE: 18
     328 atgttyath                                                              9
     331 <210> SEQ ID NO: 19
     332 <211> LENGTH: 9
     333 <212> TYPE: DNA
     334 <213> ORGANISM: Artificial Sequence
     336 <220> FEATURE:
     337 <223> OTHER INFORMATION: Combination DNA Sequence for amino acid SEQ ID
NO: 10.
     339 <400> SEQUENCE: 19
     340 ttyathath                                                              9
     343 <210> SEQ ID NO: 20
     344 <211> LENGTH: 9
     345 <212> TYPE: DNA
     346 <213> ORGANISM: Artificial Sequence
     348 <220> FEATURE:
     349 <223> OTHER INFORMATION: Combination DNA Sequence for amino acid SEQ ID
NO: 10.
     351 <400> SEQUENCE: 20
     352 athathaar                                                              9
     355 <210> SEQ ID NO: 21
     356 <211> LENGTH: 9
     357 <212> TYPE: DNA
     358 <213> ORGANISM: Artificial Sequence
     360 <220> FEATURE:
     361 <223> OTHER INFORMATION: Combination DNA Sequence for amino acid SEQ ID
NO: 10.
     363 <400> SEQUENCE: 21
     364 athaaraay                                                              9
     367 <210> SEQ ID NO: 22
     368 <211> LENGTH: 9
     369 <212> TYPE: DNA
     370 <213> ORGANISM: Artificial Sequence
     372 <220> FEATURE:
     373 <223> OTHER INFORMATION: Combination DNA Sequence for amino acid SEQ ID
NO: 10.
     376 <220> FEATURE:
     377 <221> NAME/KEY: misc_feature
     378 <222> LOCATION: (9)...(9)
     379 <223> OTHER INFORMATION: n = a, t, g, or c
     381 <400> SEQUENCE: 22
W--> 382 aaraaygcn                                                              9
```

```
385 <210> SEQ ID NO: 23
386 <211> LENGTH: 238
```

FYI

RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 10/12/2006
PATENT APPLICATION: **US/10/539,208**   TIME: 09:26:32

Input Set : **A:\B&B-135.ST25.txt**
Output Set: **N:\CRF4\10122006\J539208.raw**

<u>Please Note:</u>
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the
<220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:9; N Pos. 42
Seq#:22; N Pos. 9
Seq#:24; N Pos. 10
Seq#:26; N Pos. 7
Seq#:27; N Pos. 7
Seq#:28; N Pos. 10
Seq#:29; N Pos. 7
Seq#:30; N Pos. 8
Seq#:31; N Pos. 9
Seq#:32; N Pos. 10

VERIFICATION SUMMARY   DATE: 10/12/2006
PATENT APPLICATION: **US/10/539,208**   TIME: 09:26:32

Input Set : **A:\B&B-135.ST25.txt**
Output Set: **N:\CRF4\10122006\J539208.raw**

```
L:218 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:0
L:382 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22 after pos.:0
L:472 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:24 after pos.:0
L:502 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:26 after pos.:0
L:520 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:0
L:538 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:0
L:556 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29 after pos.:0
L:574 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30 after pos.:0
L:592 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:31 after pos.:0
L:610 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:32 after pos.:0
```